

Application No.: 10/779,987
Attorney Docket: NORTH-501C

IN THE DRAWINGS:

Please consider the replacement drawings which are submitted herewith in order to clarify the invention.

In Fig. 2, reference numeral 13 has been added to indicate the zip lock disposed along the seam of the barrier bag.

REMARKS

Summary of the Official Action

The foregoing amendment and remarks that follow are responsive to the Office Action mailed August 7, 2006. In that Office Action, the Examiner rejected Claims 1, 3-6, 11, 16 and 18-19 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,682,708 issued to Pool (POOL) and in view of U.S. Patent No. 6,485,797 issued to Smith et al. (SMITH). Claims 23 and 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH and further in view of U.S. Patent No. 5,600,958 issued to Henning et al. (HENNING). Claim 24 was rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH in further view of U.S. Patent No. 5,551,563 issued to Allen (ALLEN).

Claim 25 was rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH in further view of HENNING and in further view of U.S. Patent No. 6,398,029 issued to Farison (FARISON). Claim 26 was rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH in further view of HENNING and in further view of U.S. Patent No. 5,396,985 issued to Seki (SEKI). Also, Claims 28 and 30 were rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH in further view of HENNING and in further view of U.S. Patent No. 5,441,170 issued to Bane, III (BANE).

Claim 29 was rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH in further view of HENNING and in further view of U.S. Patent No. 3,732,976 issued to Bessett et al. (BESSETT). Claim 32 was rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH in further view of HENNING and in further view of U.S. Patent No. 6,209,341 issued to Benedetti (BENEDETTI). In addition, Claims 33, 35-37 and 39 were rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH in further view of HENNING and in further view of U.S. Patent No. 4,892,193 issued to Thomas (THOMAS).

Summary of Applicants' Response

Applicants initially point out that the above-noted amendments to Claim 33 are directed toward emphasizing the feature of Applicants' invention wherein foam panels are located on an outside of a barrier bag such that any warm ambient air entrapped within the foam panels during the packing process is blocked from contact with the refrigerant (dry ice) as distinguished from the combination of cited references, POOL and SMITH, wherein Smith is understood to disclose an arrangement wherein the foam panels are located inside the barrier bag which entraps ambient air inside the foam panels and reduces the temperature of refrigerant, as discussed in greater detail below.

By this Amendment, Applicants have cancelled Claims 1, 3-30 and 32. In addition, Applicants have also amended independent Claim 33 in order to clarify the invention and to incorporate the subject matter which is believed to be allowable over the relevant prior art references cited thereagainst. Furthermore, Applicants have added new Claims 40-53.

New independent Claim 46 and new Claims 40-45 are similar in scope to respective ones of cancelled Claims 23, 25, 27-29 as originally filed. New independent Claim 46 is similar in scope to cancelled Claim 23 but is a narrower version thereof in that new Claim 46 recites the feature of the barrier bag being disposed in abutting contact with an interior surface of the foam panels. New Claim 46 further incorporates the feature of a zip lock for closing the top of the barrier bag. Support for the feature of a zip lock can be found in Paragraph 0020 of the Specification as originally filed. Figure 2 has been revised to illustrate the zip lock 13

New Claims 47-49 are similar in scope to respective ones of cancelled Claims 3, 11 and 5 as originally filed. New Claim 50 is similar in scope to cancelled Claims 14 and 16 as originally filed. New Claim 51 is dependent upon Claim 50 and incorporates the feature of the tape being filament reinforced tape. Support for the additional feature recited in new Claim 51 can be found in Paragraph 0021 of the Specification as originally filed. New Claims 52 and 53 are dependent upon Claim 46 and are similar in scope to respective ones of cancelled Claims 20 and 9 as originally filed. The proposed amendments are not believed to add new matter nor necessitate further searching.

The Present Invention as Recited in Independent Claims 33 and 46

As recited in amended Claim 33 and new Claim 46, the present invention is directed to an insulated cryo-pack that is adapted to maintain a temperature of a material such as may be required during air and/or surface shipment. The cryo-pack of the present invention is specifically adapted to maintain the temperature of the material at -40°F for 96 hours in an environment where the ambient temperature may reach 40°F. In its broadest sense, the cryo-pack comprises an inner container, an outer container, a plurality of foam panels, at least one spacer, and a barrier bag. The inner container contains at least one material to be shipped.

A spacer may be disposed around the inner container to immobilize the inner container within the outer container and to form a cavity between the inner container and the foam panels. The inner container *and the spacer are disposed within the barrier bag. Importantly, the foam panels are disposed in abutting contact with an interior surface of the outer container with the barrier bag being place inside of the foam panels.* The cavity between the inner container and the barrier bag is filled with dry ice pellets such that the dry ice pellets surround the inner container.

As recited in new Claim 46, the spacer may be omitted from the cryo-pack. *The dry ice pellets are themselves contained by the barrier bag which, in turn, is contained by the assembly of foam panels lining the outer container.* The cryo-pack as recited in new Claim 46 additionally includes the feature of *a zip lock for closing the open top of the barrier bag* once filled with dry ice pellets.

Rejection of Independent Claim 33 Under 35 U.S.C. 103(a)

Claim 33 was rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH in further view of HENNING and in further view of THOMAS.

In the Office Action, the Examiner indicates that POOL, SMITH and HENNING “teach elements of the present invention, but do not teach at least one spacer disposed around the inner container to immobilize the inner container as to form a cavity between the inner and outer containers.” The Examiner then indicates that THOMAS “explicitly teaches at least one spacer disposed around the inner [container] within the foam panels such that a cavity is formed between the inner [container] and foam panels.” (Office Action, Pages 13-14).

The Examiner then indicates that it “would have been obvious to one of ordinary

skill...to combine a temperature-controlled shipping apparatus as taught by POOL and SMITH in view of HENNING with a spacer cavity as taught by THOMAS since spacers are commonly used in shipping applications to advantageously protect the shipping contents.” (Office Action, Page 14).

Establishing a *Prima Facie* Case of Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combined) must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be both found in the prior art, and not based on Applicants’ disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d (BNA) 1438. Sources that may be used to provide a motivation to combine references include the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58.

Applicant respectfully submits that a *prima facie* case of obviousness has not been established based on the cited references. As is discussed in detail below, all of the pending claims are believed to be allowable. Reconsideration and withdrawal of the 103 rejection is respectfully requested.

No Teaching or Suggestion of All of the Claim Limitations - Traversal of Rejection of Claim 33

As distinguished from POOL wherein the foam panels are located inside the barrier bag which is located inside the cardboard box, in the present invention, the foam panels are located outside of the barrier bag as claimed in amended Claim 33 and new Claim 46. In POOL, ambient air located inside the foam panels during the packing process remains entrapped within the foam panels in the sealed shipping container which is understood to reduce the temperature of refrigerant contained within the foam panels and thereby reduces the insulating effectiveness of the POOL shipping container.

In contrast, the present invention locates the foam panels on the outside of the barrier bag such that any ambient air entrapped within the foam panels during the packing process is blocked from contact with the refrigerant (dry ice). In such arrangement, the shipping container of the present invention provides improved insulating capabilities as compared to POOL. Furthermore, by locating the foam panels on the outside of the barrier bag, the entrapped air may pass through the cardboard box which further improves the insulating capabilities of the shipping container.

Claim 33 is believed to be allowable because there is no teaching or suggestion of all of the claim limitations by POOL and/or SMITH, taken either alone or in any proper combination. POOL is understood to disclose a paperboard shipping container (10) having a gas impervious lining (12) disposed on an exterior of a storage compartment. As can be seen in Fig. 1 of POOL, the storage compartment itself is comprised of insulating material such as open-celled, non-rigid foam panels (13, 14 15) enclosing the storage compartment. *Notably, as noted above, POOL is understood to disclose that the foam panels (13, 14, 15) are contained within the gas impervious lining (12) (i.e., barrier bag). (See Fig. 1)*

SMITH is understood to disclose a temperature-controlled container utilizing absorption cooling unit. The temperature-controlled container of SMITH comprises an insulated box into which may be placed an evaporator. At least one absorber may be mounted on an external surface of the insulated box with the absorber fluidly connected to an evaporator by vapor passageways. Temperature maintenance of the SMITH device is understood to occur when liquid contained within a liquid reservoir at ambient pressure travels into the evaporator which is at a lower pressure. The liquid then vaporizes which cools the interior by removing heat therefrom. The vaporized liquid then enters the absorber which itself generates heat that is, in turn, released to the interior of an outer container. The outer container is understood to include vent holes to allow dissipation of heat from the absorbers.

Applicants submit that neither POOL nor SMITH, taken alone or in any proper combination, teach all of the claim limitations of amended Claim 33 and new Claim 46. More specifically, each of Claims 33 and 46 recite an inner container, an outer container, a plurality of foam panels, and a barrier bag. However, *as distinguished from POOL, the barrier bag of the present invention is disposed in abutting contact with an interior surface of the foam*

panels as is as recited in amended Claim 33 and new Claim 46 and as is clearly visible in Figures 1, 2 and 3b. More specifically, Figure 1 illustrates the shipping container (10) having foam panels disposed against and covering the interior surfaces of the shipping container (10). Figures 1, 2, and 3b further illustrate the barrier bag (12) inserted into the volume defined by the foam panels. Shipping container (14) is then illustrated in Figure 1 as being insertable into the barrier bag which may be then filled with dry ice pellets in order to surround the inner container (14).

In contrast to the present invention, *POOL specifically discloses an opposite configuration wherein the foam panels (13, 14, 15) are inserted into the interior of the barrier bag (12) which, in turn, is inserted into the box (11).* In this regard, Applicants submit that POOL expressly teaches away from the improved configuration disclosed and illustrated in Applicants' invention wherein the barrier bag is disposed in abutting contact with an interior surface of the foam panels which, in turn, are disposed within an interior surface of the outer container (the functional equivalent of a box (11) of POOL). *The arrangement of POOL wherein the barrier bag is disposed inside the foam panels which are themselves disposed inside the cardboard box POOL permits the entrapment of warm ambient air inside the foam panels during the packing process which reduces the temperature of refrigerant contained within the barrier bag.*

Applicants also submit that *SMITH fails to disclose the specific arrangement as recited in amended Claim 33 and new Claim 46.* In this regard, *SMITH fails to disclose an arrangement wherein the barrier bag is disposed in abutting contact with the interior surface of the foam panels which, in turn, are disposed in abutting contact with the interior surface of the outer container.* Furthermore, SMITH is understood to be silent with regard to the concept of surrounding the inner container with the barrier bag which is filled with dry ice pellets. SMITH further fails to disclose that the barrier bag and inner container are disposed within the outer container. Furthermore, HENNING also fails to disclose the use of dry ice pellets as recited in amended Claim 33 and new Claim 46. In fact, HENNING explicitly disclaims the use of refrigerants such as dry ice due to certain undesirable characteristics of dry ice. More specifically, HENNING recites that "Dry ice may freeze the specimen material. Additionally, dry ice gives off vapors that may pose a danger in some shipping modes such as air transport." (Column 2; Lines 31-34).

Finally, the temperature at which HENNING maintains the material within its inner container is significantly different than the temperature sustainable using Applicants' invention. For example, HENNING discloses that the "shipper 10 ... maintains a pre-determined temperature range typically between 0.5°C and 5.0° C for a given period of time, typically at least 24 hours." (Col. 6, Line 66 to Col. 7, Line 2). Applicants submit that the temperature range of 0.5°C and 5.0° C is equivalent to a temperature range of 32.9° F to 41° F. In contrast, Applicants invention advantageously is capable of maintaining a temperature as low as -40°F. Additionally, Applicants invention provides that such temperature may be maintained for a duration of up to 96 hours as compared to the HENNING arrangement which is limited to a duration of only up to 24 hours.

Even further, Applicants submit that none of the references cited against Claim 33 in the Office Action teach all of the elements of the present invention. More specifically, neither POOL, SMITH, HENNING or THOMAS, taken alone or in any proper combination, teach an arrangement wherein the barrier bag is disposed within the foam panels which are disposed within the outer container. Neither SMITH, HENNING or THOMAS disclose the use of a barrier bag. Furthermore, even though POOL discloses the use of a barrier bag, the arrangement of the barrier bag in POOL is distinguished from the present invention.

With regard to new Claim 46, Applicants submit that none of the prior art references cited in the Office Action disclose a zip lock bag which may be adapted to close the barrier bag. Such feature advantageously provides a means by which the plurality of dry ice pellets may be easily placed into the barrier bag to surround the inner container after which the zip lock may be closed as shown in Figure 2 in order to close the open top of the barrier bag.

Applicants therefore submit that nothing in the disclosure of POOL, SMITH, HENNING or THOMAS can be interpreted as providing any teaching or suggestion of all of the claimed limitations as recited in amended Claim 33 and new Claim 46. Because of Applicants' belief in the lack of any teaching or suggestion of all of the claim elements, the Examiner's rejection of Claim 33 under 35 U.S.C. § 103(a) is believed to be overcome. Because amended Claim 33 is believed to be allowable, all claims depending therefrom, namely, Claims 34-45, are also believed to be allowable. Likewise, the combination of elements as claimed in Claim 46 is also believed to be unobvious or any possible combination of POOL, SMITH, HENNING or THOMAS. Because of Applicants' belief in the lack of any

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teaching or suggestion of all of the claimed elements as claimed in Claim 46 is believed to be allowable as are all claims depending therefrom, namely, Claims 47-53.

Conclusion

In view of the foregoing, the application is believed to be in condition for allowance. Entry of the amendments and issuance of a Notice of Allowance is therefore respectfully requested. Should the Examiner have any suggestions for expediting allowance of the application, please contact Applicants' representative at the telephone number listed below.

If any additional fee is due, please charge deposit account 19-4330.

Respectfully submitted,

Date: Nov 7, 2007

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